

SELECTIVE LAYER MILLIMETER-WAVE SURFACE-HEATING SYSTEM
AND METHOD

Abstract of the Disclosure

A surface-heating system heats a surface with a high-power wavefront at a millimeter-wave frequency. The high-power wavefront may be a collimated wavefront or a converging or diverging wavefront. In some embodiments, the system includes a frequency generator to generate a lower-power millimeter-wave frequency signal, and an active-array antenna system to amplify the millimeter-wave frequency and generate the high-power wavefront in a direction of a surface for heating the surface. In other embodiments, a frequency generator and power amplifier may generate a high-power power millimeter-wave frequency signal, and a passive-array antenna system may provide the high-power wavefront in a direction of the surface. In some embodiments, a thermal-sensing subsystem may measure the surface temperature and generate a control signal to maintain the surface temperature within a predetermined temperature range.